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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/914,838	09/25/2001	Christopher T Bartlett	540-317	4372

7590 01/16/2004  
Nixon & Vanderhye  
8th Floor  
1100 North Glebe Road  
Arlington, VA 22201-4714

EXAMINER

PRIZIO JR, PETER

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 01/16/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/914,838

Applicant(s)

BARTLETT, CHRISTOPHER T

Examiner

Peter Prizio

Art Unit

2674

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5,6. 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Response to Amendment***

2. This action is in response to preliminary amendment filed on 4 September 2001.

### ***Specification***

3. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

The application should include section headings.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

### **Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC (See 37 CFR 1.52(e)(5) and MPEP 608.05. Computer program listings (37 CFR 1.96(c)), "Sequence Listings" (37 CFR 1.821(c)), and tables having more than 50 pages of text are permitted to be submitted on compact discs.) or  
REFERENCE TO A "MICROFICHE APPENDIX" (See MPEP § 608.05(a). "Microfiche Appendices" were accepted by the Office until March 1, 2001.)
- (e) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.

(2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.

(f) BRIEF SUMMARY OF THE INVENTION.

(g) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).

(h) DETAILED DESCRIPTION OF THE INVENTION.

(i) CLAIM OR CLAIMS (commencing on a separate sheet).

(j) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

(k) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

### ***Claim Rejections - 35 USC § 112***

4. Claims 1 – 17 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification lacks enablement with regards to the optical correlator and the processor. It has not been shown how the input to the optical sensor 12 becomes an optical image for optically correlating the optical image with an optical image representative of at least one of the markings. The means for determining the orientation of the head mounting using the output from the optical correlator when it detects there is a correlation between the images has not been disclosed. The application makes reference to the processor 28 having stored images, however it is unclear how the processor utilizes the output of CCD camera 56 and the stored images to determine movement and how the processor outputs an optical signal for use in the optical correlator 26. Further, how the symbol generator 6 functions. Lastly, reference

numeral 10 in figure 1 has not been disclosed and could be an important element in the invention, having an output to the optical correlator and an input from the symbol generator. It is unclear to one of ordinary skill in the art to be able to replicate this invention with the provided disclosure.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claim 1 – 4, 10 – 12, 15, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 6,064,749 to Hirota et al. (Hirota).

7. Regarding claims 1 and 2, Hirota (Figs. 1, 2, & 4) teaches a head mounting (20), an optical sensor (22) located at a fixed point relative to a datum which can be the same as the head mounting (column 5, lines 40 – 44), a plurality of distinguishable (column 10, lines 41 – 43) markings (L1 – L3) each of which when in use is located in fixed relation with a respective known point (column 7, lines 20 – 27) characterized by an optical correlator (42) for optically correlating the optical image from the optical sensor (22) with an optical image representative of at least one of the markings (column 11, lines 30 – 50), and means for determining the orientation of the head mounting using the output from the optical correlator when it detects there is correlation between the images (column 13, 30 – 43).

8. Regarding claim 3, Hirota (Fig. 5), as applied to claim 1, further teaches the, or each, distinguishable marking comprises a spatial pattern (column 10, lines 32+).

9. Regarding claim 4, Hirota (Fig. 5), as applied to claim 1, further teaches the, or each, distinguishable marking is defined in part at least by the color of the marking (column 10, lines 32+).

10. Regarding claim 10, Hirota, as applied to claim 1, further teaches the means for determining the orientation of the head mounting orientation by determining where within the field of view of the optical sensor a marking is located (column 6, lines 33 – 37 & column 13, lines 30 – 43).

11. Regarding claim 11, Hirota (Fig. 1), as applied to claim 1, teaches a video camera (22) for capturing the optical image and producing an electrical signal representative of it and converting the electrical signal back to an optical image (column 6, lines 7 – 16).

12. Regarding claim 12, Hirota (Fig. 1), as applied to claim 1, further teaches a second optical sensor (24) located at a second known fixed point relative to the head mounting or to the fixed datum.

13. Regarding claim 15, Hirota (Figs. 1, 2, & 4) teaches a head mounting (20), an optical sensor (22) located at a fixed point relative to the head mounting (column 5, lines 40 – 44) and operable to collect optical scene data representative of the users environment, an optical correlator (42) for correlating optical scene data previously captured by the optical sensor (22) to determine the relative movement of the head mounting between capture of said optical scene data (40, column 7, lines 55 - 57), and

means for determining the orientation of the head mounting from said relative movements (column 13, 30 – 43).

14. Regarding claim 17, Hirota, as applied to claim 15, teaches one or more visibly distinguishable (column 10, lines 41 – 43) markings (L1 – L3) at respective known points (column 7, lines 20 – 27) fixed relative to the datum.

***Claim Rejections - 35 USC § 103***

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

16. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota, as applied to claim 1, in view of US Patent 5,812,257 to Teitel et al. (Teitel). Hirota teaches colored concentric circles for use as distinguishable markings wherein each marking is a substantially collimated image (column 11, lines 50-60), but does not disclose a marking generator, however, Teitel (Fig. 3) teaches using marking generators (14A, 14B) and further teaches the color of the markings is defined by the wavelength of the light produced by each marking generator (column 3, lines 28 – 35).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the non-active landmarks of Hirota with the marking generators as taught by Teitel for the purpose of distinguishing the signals from one another. One skilled in the art would have been motivated to generate the claimed invention with a reasonable expectation of success.

17. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hirota, as applied to claim 15, in view of US Patent 5,424,556 to Symosek et al. Symosek et al. teaches a head tracker system used in an aircraft in which the environment comprises at least part of the cockpit (column 1, lines 9 – 25).

It would have been obvious to one skilled in the art to apply the head tracker as taught by Hirota in the cockpit of an aircraft as suggested by Symosek et al. for the benefit of using a head tracker in an aircraft.

### ***Conclusion***

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following art is provided to further show the state of the art of head tracking devices:

5,850,201 to Lasko-Harvill et al.

6,424,334 to Zimmerman et al.

5,684,498 to Welch et al.

4,446,480 to Breglia et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Prizio whose telephone number is (703) 305-5712. The examiner can normally be reached on Monday-Friday (7:30-5:00), alternating Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe can be reached on (703) 305-4709. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.



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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Peter Prizio

Examiner

Art Unit 2674

PP

A handwritten signature in black ink, appearing to read 'Peter Prizio', with a long horizontal flourish extending to the right.